

## **COMPLETE LISTING OF THE CLAIMS**

A complete listing of the claims is provided hereinafter for the Examiner's convenience.

1. (currently amended) A method of evaluating a reservoir, comprising:  
providing a three dimensional reservoir framework having a plurality of cells;  
assigning one or more constant reservoir property values to some or all of the cells to provide a first three dimensional reservoir model;  
on a computer, performing a flow simulation on the first three dimensional reservoir model;  
making an assessment of the reservoir using the first three dimensional reservoir model;  
when it is determined that the first three dimensional reservoir model is to be updated, updating the first three dimensional reservoir model by populating some or all of the cells with one or more variable reservoir property values to provide a second three dimensional reservoir model;  
on a computer, performing a flow simulation on the second three dimensional reservoir model;  
making an assessment of the reservoir using the second three dimensional reservoir model;  
comparing the assessment of the reservoir made using the first three dimensional reservoir model with the assessment of the reservoir made using the second three dimensional reservoir model;  
when it is determined that the second three dimensional model is to be updated, updating the second three dimensional reservoir model by populating some or all of the cells with one or more rock-type fraction, porosity and permeability ~~reservoir~~ property values ~~derived from seismic data~~ to provide a third three dimensional reservoir model;  
on a computer, performing a flow simulation on the third three dimensional reservoir model;  
making an assessment of the reservoir using the third three dimensional reservoir model;

comparing the assessment of the reservoir made using the second three dimensional reservoir model with the assessment of the reservoir made using the third three dimensional reservoir model;

when it is determined that the third three dimensional model is to be updated,  
updating the third three dimensional reservoir model by populating some or all of the cells  
with net-to-gross values directly derived from seismic data to provide a fourth three  
dimensional reservoir model;

on a computer, performing a flow simulation on the fourth three dimensional reservoir  
model;

making an assessment of the reservoir using the fourth three dimensional reservoir  
model;

comparing the assessment of the reservoir made using the third three dimensional  
reservoir model with the assessment of the reservoir made using the fourth three dimensional  
reservoir model; and

when it is determined that the fourth three dimensional model is to be updated,  
updating the fourth three dimensional reservoir model by populating some or all of the cells  
with net-to-gross values directly derived from production data to provide a fifth three  
dimensional reservoir model.

2. (canceled)
3. (original) The method of claim 1, wherein providing the three dimensional reservoir framework comprises building the three dimensional reservoir framework.
4. (original) The method of claim 1, wherein the constant reservoir property values include a plurality of constant rock-type fraction values.
5. (original) The method of claim 1, wherein the variable reservoir property values include a plurality of constant porosity values.

6. (original) The method of claim 1, wherein the variable reservoir property values include a plurality of constant permeability values.
7. (original) The method of claim 1, wherein the variable reservoir property values include a plurality of variable rock-type fraction values.
8. (original) The method of claim 1, wherein the variable reservoir property values include a plurality of variable porosity values.
9. (original) The method of claim 1, wherein the variable reservoir property values include a plurality of variable permeability values.
10. (original) The method of claim 1, wherein the reservoir property values derived from the seismic data comprises a plurality of rock-type fraction values derived from seismic data.
11. (original) The method of claim 1, wherein updating the second three dimensional reservoir model comprises populating some or all of the cells with variable porosity values.
12. (original) The method of claim 1, wherein updating the second three dimensional reservoir model comprises populating some or all of the cells with variable permeability values.
13. (original) The method of claim 1, wherein each cell has a pre-selected scale.
14. (original) The method of claim 1, wherein providing the three dimensional reservoir framework comprises providing the three dimensional reservoir framework at a flow simulation scale.
15. (original) The method of claim 1, wherein providing the three dimensional reservoir framework comprises defining a top and bottom surface of the reservoir framework.
16. (original) The method of claim 1, wherein providing the three dimensional reservoir framework comprises dividing the three dimensional reservoir framework into one or more stratigraphic sequences.

17. (original) The method of claim 1, wherein providing the three dimensional reservoir framework comprises dividing the three dimensional reservoir framework into one or more stratigraphic sequences; and dividing each stratigraphic sequence into one or more layers.
18. (original) The method of claim 1, wherein the constant reservoir property values are average values.
19. (currently amended) The method of claim 1, further comprising wherein making an assessment of the reservoir using at least one of the first, second, third fourth, and fifth three dimensional reservoir models comprises calculating a net present value for the reservoir based on the first at least one of the first, second, third, fourth, and fifth three dimensional reservoir model models.
20. (currently amended) The method of claim 1, further comprising: wherein comparing the assessment of the reservoir made using one of the three dimensional models with the assessment of the reservoir made using a subsequently provided three dimensional reservoir model comprises:  
calculating a net present value for the reservoir based on the first said one of the three dimensional reservoir model models;  
calculating a net present value for the reservoir based on the second a subsequently provided three dimensional reservoir model; and  
comparing the calculated net present value for the reservoir based on the second three dimensional reservoir model with the net present value for the reservoir based on the first three dimensional reservoir model values.
21. (canceled)
22. (original) The method of claim 1, wherein the variable reservoir property values are populated using geostatistics.
23. (canceled)
24. (original) The method of claim 1, further comprising retrieving data at one or more scales, and deriving one or more reservoir property values from such data.

25. (original) The method of claim 1, further comprising retrieving at least one of log data, core data, well test data and seismic data at one or more scales, and deriving one or more reservoir property values from such data.
26. (currently amended) A method of evaluating a reservoir, comprising:
  - providing a three dimensional reservoir framework at a flow simulation scale, wherein the three dimensional reservoir framework includes a plurality of cells;
  - assigning one or more constant reservoir property values to some or all of the cells to provide a three dimensional reservoir model;
  - on a computer, performing a flow simulation on the three dimensional reservoir model; [[and]]
    - performing an assessment of the reservoir based on the three dimensional reservoir model;
    - determining whether the three dimensional reservoir model needs to be updated; and
    - populating some or all of the cells with other reservoir property values when the three dimensional reservoir model needs to be updated.
27. (original) The method of claim 26, wherein performing the assessment comprises calculating a net present value for the reservoir.
28. (original) The method of claim 26, wherein the constant property values include a plurality of constant rock-type fraction values.
29. (original) The method of claim 26, wherein the constant property values include a plurality of constant porosity values.
30. (original) The method of claim 26, wherein the constant property values include a plurality of constant permeability values.
31. (currently amended) The method of claim 26, further comprising:  
determining whether the three dimensional reservoir model needs to be updated; and

~~populating some or all of the cells with wherein the other reservoir property values comprise one or more variable porosity and permeability values if the three dimensional reservoir model needs to be updated.~~

32. (currently amended) The method of claim 26, ~~further comprising:~~  
~~determining whether the three dimensional reservoir model needs to be updated; and~~  
~~populating some or all of the cells with wherein the other reservoir property values comprise one or more variable rock-type fraction values if the three dimensional reservoir model needs to be updated.~~
33. (currently amended) The method of claim 26, ~~further comprising:~~  
~~determining whether the three dimensional reservoir model needs to be updated; and~~  
~~populating some or all of the cells with wherein the other reservoir property values comprise one or more rock-type fraction values derived from seismic data if the three dimensional reservoir model needs to be updated.~~
34. (currently amended) The method of claim 26, ~~further comprising:~~  
~~determining whether the three dimensional reservoir model needs to be updated; and~~  
~~populating some or all of the cells with wherein the other reservoir property values comprise one or more rock-type fraction values derived from production data if the three dimensional reservoir model needs to be updated.~~
35. (currently amended) A method of evaluating a reservoir, comprising:  
providing a three dimensional reservoir framework having a plurality of cells;  
assigning one or more constant reservoir property values to some or all of the cells to provide a first three dimensional reservoir model;  
on a computer, performing a flow simulation on the first three dimensional reservoir model;  
making an assessment of the reservoir using the first three dimensional reservoir model  
updating the first three dimensional reservoir model by populating some or all of the cells with ~~one or more variable~~ other reservoir property values to provide ~~a second~~ one or more additional three dimensional reservoir ~~model~~ models based on a comparison of; and

~~comparing a net present value for the reservoir based on the first three dimensional reservoir model with a net present value for the reservoir based on the second one or more additional three dimensional reservoir model models.~~

36. (original) The method of claim 35, wherein the constant reservoir property values comprise a plurality of constant rock-type fraction, porosity and permeability values.

37. (original) The method of claim 35, wherein providing the three dimensional reservoir framework comprises providing the three dimensional reservoir framework at a flow simulation scale.

38. (original) The method of claim 35, wherein updating the first three dimensional reservoir model comprises populating some or all of the cells with one or more variable porosity and permeability values.

39-42. (canceled)

43. (original) The method of claim 4, wherein the rock-type fraction values are net-to-gross values.

44. (original) The method of claim 7, wherein the rock-type fraction values are net-to-gross values.

45. (canceled)

46. (currently amended) The method of claim [[45]] 1, wherein ~~performing the economic making an assessment~~ comprises calculating for the reservoir at least one of net present value, discounted cash flow rate, maximum cash impairment, return on capital, and any combination thereof.